



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

*[Handwritten signature]*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,260	12/16/2004	Andrew Steele	GB020103	8331
24737	7590	02/02/2006	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS			KAPLAN, HAL IRA	
P.O. BOX 3001			ART UNIT	PAPER NUMBER
BRIARCLIFF MANOR, NY 10510			2836	

DATE MAILED: 02/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/518,260	STEELE, ANDREW	
	<b>Examiner</b>	<b>Art Unit</b>	
	Hal I. Kaplan	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 16 December 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 9 and 10 is/are allowed.
- 6) Claim(s) 1,2 and 4-8 is/are rejected.
- 7) Claim(s) 3 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 16 December 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/25/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. A copy of the international application, and a translation of the international application into the English language, as required by 35 U.S.C. 371(c)(2), have not been received.

### *Specification*

2. **Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the

field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing: See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

3. The disclosure is objected to because of the following informalities: Page 1, line 28 contains the phrase "different to". It appears this should read "different from". Page 3, line 8 contains the phrase "the current source is preferably". It appears this should read "the current source of the reference ramp circuit is preferably". Page 4, line 21 contains the phrase "transistor is". It appears this should read "transistor are". Page 5, line 21 contains the phrase "semiconductor substrate 70". It appears this should read "semiconductor substrate 72". Page 6, lines 24-25 contain the phrase "produce output". It appears this should read "produce an output". Page 6, line 28 contains the word "return". It appears this should be "returns". Page 7, line 24 contains the word

Art Unit: 2836

"components". It appears this should be "component's". Page 8, line 3 contains the word "ill". It appears this should be "will". Page 9, line 3 contains the phrase "is used to". It appears this should read "is connected to". Page 9, line 15 contains the phrase "output by". It appears this should read "output from".

Appropriate correction is required.

4. The disclosure is objected to under 37 CFR 1.71(a) because it is not sufficiently enabling.

Page 2, lines 11-12 state that the signal generator of the invention comprises a voltage detector which detects whether the charge on the capacitor is above a predetermined charge. Page 2, lines 26-27 state that the circuit of the invention does not need an op-amp in it. However, in order to detect whether the charge on the capacitor is above a predetermined charge, the charge on the capacitor must be compared to the predetermined charge via a comparator, which comprises an op-amp. It is not clear how the circuit can work as intended without both voltage detectors comprising op-amps.

Page 6, line 28 states that when the reference voltage detector triggers, the sign of the output is returned to its original sign. It is not clear to the examiner what this means, as in Figure 2, the output voltage is always either positive or zero, and never negative.

Page 6, line 30 through page 7, line 1 are not in proper idiomatic English, and it would not be clear to one of ordinary skill in the art what is meant. It is not clear from Figure 2 how this is illustrated because there are no scales or numbers.

Art Unit: 2836

5. The use of the trademark TOPFET has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology, as applicant has done.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

***Drawings***

6. The drawings are objected to because of the following informalities: Figure 2 has no scales or numbers, and it is not clear how Figure 2 is supposed to be read. In Figure 4, it appears that inverter S1 should be labeled "51", and filter S2 should be labeled "52" (see page 9, lines 6 and 9-10).

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "72" has been used to designate both what appears to be the substrate in Figure 1 and the switching circuit in Figure 3.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 70 in Figure 1 (see page 5, line 21), 52 (see page 8, lines 23-24) and 58 (see page 8, line 25) in Figure 3, and 51 and 52 in Figure 4 (see page 9, lines 6 and 9-10).

9. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 72 in Figure 1. Corrected drawing sheets in compliance with 37 CFR

1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by the US patent of Venema (4,633,168).

As to claim 1, Venema, drawn to a measuring system for determining the reactance ratio of a pair of reactive devices, teaches, in Figure 1, a signal generator for generating a pulse width modulated signal, comprising: matched reference and modulation ramp circuits, each including a current source ( $V_s/R_1, V_s/R_2$ ) (see Figure 1), a capacitance ( $C_1, C_2$ ) arranged to be charged by the current output from the current source ( $V_s/R_1, V_s/R_2$ ) (see column 1, lines 64-66), a switch ( $T_1, T_2$ ) for discharging the

capacitance ( $C_1, C_2$ ) (see column 2, lines 11-15 and 44-49), and a voltage detector (11,12) for detecting a predetermined charge on the capacitance ( $C_1, C_2$ ) (see column 2, lines 20-23 and 51-54); wherein the output ( $V_T$ ) of the voltage detector (12) of the reference ramp circuit controls the switch ( $T_1, T_2$ ) of both the reference and the modulation ramp circuits (see column 2, lines 11-15, 44-49, and 54-56, and Figure 1); and the output ( $V_0$ ) of the voltage detector (11) of the modulation ramp circuit is connected to an output for providing the pulse width modulated signal (see Figure 1).

As to claim 2, in each of the measurement and modulation ramp circuits of Venema, the current source ( $V_s/R_1, V_s/R_2$ ) is connected to the capacitance ( $C_1, C_2$ ) at a measurement node (see Figure 1); the voltage detector (11,12) has a sense input and an output ( $V_T, V_0$ ) with the sense input being connected to the measurement node (see Figure 1), for detecting the voltage on the measurement node and outputting a control signal on the output ( $V_T, V_0$ ) under predetermined conditions (see column 2, lines 20-23 and 51-56); the switch ( $T_1, T_2$ ) is arranged across the capacitance ( $C_1, C_2$ ) (see Figure 1); and the switch ( $T_1, T_2$ ) has a control input (see Figure 1), the switch ( $T_1, T_2$ ) being arranged to be closed by a signal on the control input for discharging the capacitance the capacitance ( $C_1, C_2$ ), voltage detector (11,12) and switch ( $T_1, T_2$ ) of the reference and modulation ramp circuits are matched (see column 1, 64-66; if the capacitors may take any forms, they can be matched); and the control output ( $V_T$ ) of the voltage detector (12) on the reference ramp circuit is connected to the control input of the switches ( $T_1, T_2$ ) of both the reference and modulation ramp circuits.

As to claim 4, in the signal generator of Venema, the switch in each ramp circuit is a transistor ( $T_1, T_2$ ) having controlled terminals connected across the capacitance ( $C_1, C_2$ ) and the control terminal connected to the output of the voltage detector (12) of the reference ramp circuit.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Venema.

Venema discloses all of the claimed features, as set forth above, except for the modulation and reference ramp circuits being integrated on a single semiconductor substrate. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to integrate the modulation and ramp circuits on a single semiconductor substrate because it has been held that merely making integral is a matter of obvious engineering choice and not a patentable distinction. *In re Larson*, 340 F.2d 965, 968,

144 USPQ 347, 349 (CCPA 1965) (A claim to a fluid transporting vehicle was rejected as obvious over a prior art reference which differed from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise several parts rigidly secured together as a single unit. The court affirmed the rejection holding, among other reasons, "that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice."). See MPEP §2144.04(V)(B).

15. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venema in view of the US patent of Sase et al. (6,798,180).

As to claim 6, Venema discloses all of the claimed features, as set forth above, except for a switching dc-dc converter circuit. Sase, drawn to a power-supply device, teaches, in Figure 1, a switching dc-dc converter circuit comprising a dc input (Vi); a dc output (Vo); a signal generator (PWM); and a switching module (Q1,Q2) connected between the dc input (Vi) and the dc output (Vo) and containing at least one switch (Q1,Q2) controlled by the output of the signal generator to convert an input dc voltage into an output dc voltage (see column 3, lines 37-41 and 52-55). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to build the circuit of Sase with the signal generator of Venema, because the circuit of Sase requires a pulse width modulated signal generator.

As to claim 7, Sase does not disclose the power switching comprise comprising a device package, but it would have been obvious to one of ordinary skill in the art, at the time of the invention, to build the device of Sase including the signal generator (PWM)

and at least one power transistor switch (Q1,Q2) in a device package because it has been held that merely making integral is a matter of obvious engineering choice and not a patentable distinction. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) (A claim to a fluid transporting vehicle was rejected as obvious over a prior art reference which differed from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise several parts rigidly secured together as a single unit. The court affirmed the rejection holding, among other reasons, "that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice."). See MPEP §2144.04(V)(B).

As to claim 8, the device of Sase comprises first (Q1) and second (Q2) power transistors wherein the signal generator (PWM) is arranged to switch on the first power transistor (Q1) only when the second transistor (Q2) is switched off and to switch on the second transistor (Q2) only when the first transistor (Q1) is switched off (see column 3, lines 52-57).

***Allowable Subject Matter***

16. Claims 9 and 10 are allowed.
17. The following is an examiner's statement of reasons for allowance:

Claims 9 and 10 are allowed because none of the prior art of record teaches or discloses supplying a modulated current to charge the capacitance of the modulation ramp circuit, in combination with the remaining claimed features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

18. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter:

Claim 3 contains allowable subject matter because none of the prior art of record teaches or discloses supplying a modulated current to charge the capacitance of the modulation ramp circuit, in combination with the remaining claimed features.

***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patents to Brandt (5,926,013) and Walters et al. (5,982,160) teach similar devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal I. Kaplan whose telephone number is 571-272-8587. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hik



ROBERT L. DEBERARDINO  
PRIMARY EXAMINER